

Notice of Allowability

Application No.

10/643,820

Examiner

Yewebdar T Tadesse

Applicant(s)

HIATT ET AL.

Art Unit

1734

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to _____.
2. ☒ The allowed claim(s) is/are 1-11.
3. ☒ The drawings filed on 19 August 2003 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 08/19/03 & 04/05/04
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date 11292004.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Gregory Mayback on 12/01/2004 and on 12/03/2004.

2. The application has been amended as follows:

In the claims:

In claim 1, line 16; insert the phrase --at least one-- between the words "said" and "rinse".

In claim 2, line 1, insert the phrase -- said process chamber is part of a process tool; -- after the punctuation mark ":".

In claim 5, line 6; insert the phrase --at least one-- between the words "said" and "rinse".

In claim 7, lines 4-5, delete the phrase "with a chuck configured therein" after claim no. "1".

In claim 7, line 9; replace the word "a" with the word -- the--.

In claim 7, line 12; insert the word -- the-- between the words "using" and "at".

In claim 7, line 12; replace the word "off" with the word --of --.

Allowance

3. Claims 1-11 are allowed.

4. The following is an examiner's statement of reasons for allowance: An et al (US 6,033,135) discloses (see Figs 5,12) a development system for manufacturing semiconductor comprising a chuck (10) for receiving a backside of the substrate, configured inside a process chamber, formed with a vacuum port (passage 12a) and a plurality of vacuum channels (holes 13b) connected to a vacuum port (passage 12a); a rinse nozzle (73) for dispensing a solvent liquid; a rinse supply part (90) supplying the solvent to the rinse nozzle (73). An et al further discloses a first source of gas (a vacuum passage 12a connected to vacuum line) and a second source of gas (gas supply line 19) for providing inert gas. However the second source of gas does not provide a neutral gas to the plurality of vacuum channels (13b). Instead, the neutral gas is sprayed through the opening 18 over the edge of the backside of the wafer (see column 5, lines 13-24). Ko et al (US 6,499,333) discloses (see Fig 5) a substrate processing chamber having rinsing nozzles (40) and a plurality of arms 36a lifting the substrate. Although Ko et al teaches (see column 6, lines 38-48) a plurality of vacuum channels (passages) to secure the substrate to the pedestal, a source of neutral gas is not provided to the vacuum channels of Ko et al's system. Stewart (US 5,529,626) discloses (see Figs 4 and 5) a spincup having a wafer backside deposition reduction apparatus comprising a chuck (426) provided with a vacuum to secure the wafer (502) supported thereon (see column 6, lines 1-2); rinse nozzles (411 and 412); and gas blow

nozzles (402) providing gas to the backside region of the wafer. In Stewart neither the chuck is provided with a plurality vacuum channels, nor a second gas is provided to the vacuum channel. Sakamoto et al (US 5,626,675) discloses (see Fig 18) a set of three movable arms (11) for lifting the wafer from the chuck. However, the Sakamoto et al's system is not provided with a plurality of vacuum channels for the chuck, rinse nozzles and a second gas directed to the vacuum channel. Cheung et al (US 6,136,163) discloses (see fig 12) an electro-chemical deposition system, wherein crossover valve 847 selectively switches communication between the pressure line 853 and the vacuum line 855. Prior art of record does not disclose or suggest the combination with a process chamber having a configuration for reducing particle contamination on the substrate comprising, among others, a chuck provided with a vacuum port and a plurality of vacuum channels, wherein a source of neutral gas is provided to the plurality of vacuum channels.

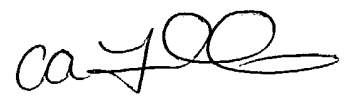
5. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yewebdar T Tadesse whose telephone number is (571) 272-1238. The examiner can normally be reached on Monday-Friday 8:00 AM-4: 30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Fiorilla can be reached on (571) 272-1187. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


YTT


CHRIS FIORILLA
SUPERVISORY PATENT EXAMINER
AU 1734